WHAT IS CLAIMED IS:

1. A wireless terminal device for selectively receiving a desired channel from a plurality of channels, comprising:

an antenna for receiving a radio-frequency signal including said plurality of channels;

a local oscillator for oscillating a local oscillation signal;

a first mixer of a differential type for mixing the radio-frequency signal sent from said antenna with the local oscillation signal sent from said local oscillator to produce a first base band signal and a second base band signal having a phase differing by 180 degrees from that of said first base band signal;

a first low-pass filter of the differential type and a passive type for receiving said first and second base band signals from said first mixer; and

a base band circuit for receiving said first and second base band signals passed through said first low-pass filter.

2. The wireless terminal device according to claim 1, wherein said first low-pass filter includes:

a first inductor for passing and transmitting said first base band signal sent from said first mixer to said base band circuit;

a second inductor for passing and transmitting said second base band signal sent from said first mixer to said base band circuit; and

a capacitor coupled between said first and second inductors.

3. The wireless terminal device according to claim 1, wherein said first low-pass filter has a cut-off frequency lower than a channel next to a channel neighboring to said desired channel.

4. The wireless terminal device according to claim 3, wherein said base band circuit includes:

an active low-pass filter for receiving said first and second base band signals passed through said first low-pass filter, and having a cut-off

frequency lower than the channel neighboring to said desired channel.

5. The wireless terminal device according to claim 1, wherein said base band circuit can operate with only a positive power supply.

6. The wireless terminal device according to claim 1, further comprising:

a phase shifter for producing first and second radio-frequency signals having phases differing by 90 degrees from each other in response to the radio-frequency signal sent from said antenna, and applying said first radio-frequency signal to said first mixer;

a second mixer of the differential type for mixing the second radio-frequency signal sent from said phase shifter with the local oscillation signal sent from said local oscillator to produce a third base band signal and a fourth base band signal having a phase differing by 180 degrees from that of said third base band signal; and

a second low-pass filter of the differential type and the passive type for receiving said third and fourth base band signals from said second mixer.

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7. The wireless terminal device according to claim 6, wherein said first and second low-pass filters are formed of a single element.

8. The wireless terminal device according to claim 6, wherein each of said first and second mixers is an even harmonic mixer.

9. The wireless terminal device according to claim 1, wherein said first mixer is an even harmonic mixer.

10. A wireless terminal device for selectively receiving a desired channel from a plurality of channels, comprising:

an antenna for receiving a radio-frequency signal including said plurality of channels;

a local oscillator for oscillating a local oscillation signal;

a first mixer of a differential type for mixing the radio-frequency signal sent from said antenna with the local oscillation signal sent from said local oscillator to produce a first base band signal and a second base band signal having a phase differing by 180 degrees from that of said first base band signal;

a first low-pass filter of the differential type and a passive type for receiving the first and second base band signals from said first mixer;

a second low-pass filter of the passive type for receiving the first and second base band signals passed through said first low-pass filter, and having a cut-off frequency higher than a cut-off frequency of said first low-pass filter; and

a base band circuit for receiving said first and second base band signals passed through said second low-pass filter.

11. The wireless terminal device according to claim 10, wherein said second low-pass filter includes:

a first inductor for passing and transmitting said first base band signal sent from said first low-pass filter to said base band circuit;

a second inductor for passing and transmitting said second base band signal sent from said first low-pass filter to said base band circuit; and

a capacitor coupled between said first and second inductors.

12. The wireless terminal device according to claim 10, wherein said second low-pass filter includes:

a first resistance element for passing and transmitting the first base band signal sent from said first low-pass filter to said base band circuit;

a second resistance element for passing and transmitting the second base band signal sent from said first low-pass filter to said base band circuit; and

a capacitor coupled between said first and second resistance elements.

13. The wireless terminal device according to claim 10, wherein said first low-pass filter has the cut-off frequency lower than a channel next to a channel neighboring to said desired channel.

14. The wireless terminal device according to claim 13, wherein said base band circuit includes:

an active low-pass filter for receiving said first and second base band signals passed through said first and second low-pass filters, and having a cut-off frequency lower than the channel neighboring to said desired channel.

15. The wireless terminal device according to claim 14, wherein said second low-pass filter includes:

a first resistance element for passing and transmitting the first base band signal sent from said first low-pass filter to said base band circuit;

a second resistance element for passing and transmitting the second base band signal sent from said first low-pass filter to said base band circuit; and

a capacitor coupled between said first and second resistance elements; and

said second low-pass filter is integrated with at least said active low-pass filter on a common semiconductor substrate.

16. The wireless terminal device according to claim 13, wherein the cut-off frequency of said second low-pass filter is set in accordance with deterioration of attenuation characteristics in a high frequency range of said first low-pass filter.

17. The wireless terminal device according to claim 16, wherein the cut-off frequency of said second low-pass filter is at least 80 MHz.

18. The wireless terminal device according to claim 10, further comprising:

a phase shifter for producing first and second radio-frequency signals having phases differing by 90 degrees from each other in response to the radio-frequency signal sent from said antenna, and applying said first radio-frequency signal to said first mixer;

a second mixer of the differential type for mixing the second radio-frequency signal sent from said phase shifter with the local oscillation signal sent from said local oscillator to produce a third base band signal and a fourth base band signal having a phase differing by 180 degrees from that of said third base band signal;

a third low-pass filter of the passive type for receiving said third and fourth base band signals from said second mixer; and

a fourth low-pass filter of the passive type for receiving the third and fourth base band signals passed through said third low-pass filter, and having a cut-off frequency higher than a cut-off frequency of said third low-pass filter.

19. The wireless terminal device according to claim 18, wherein each of said first and second mixers is an even harmonic mixer.

20. The wireless terminal device according to claim 10, wherein said first mixer is an even harmonic mixer.